

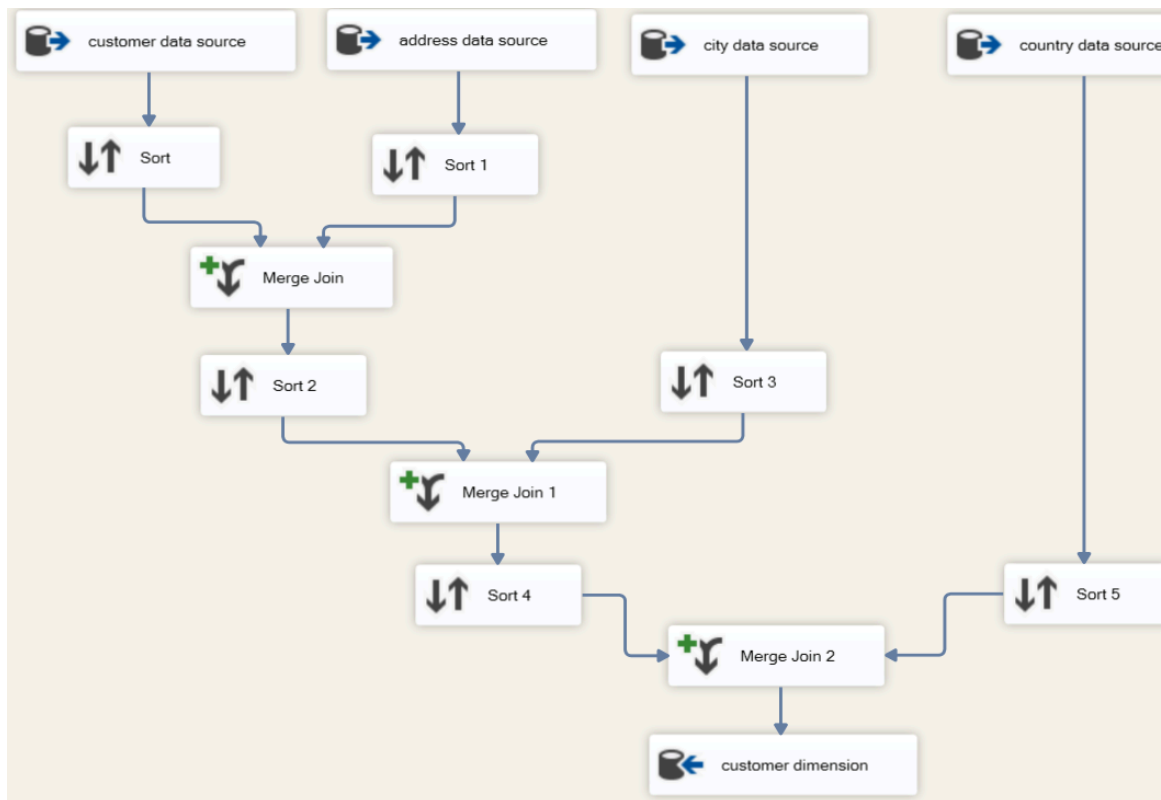
# Queries and Full Details

## 1. Dimension: Dim\_Customer

- Source Tables: Customer, Address, City, Country
- Dimension Levels: None (Flat Dimension)
- Dimension Attributes:
  - CustomerKey (Surrogate Key - Identity)
  - customer\_id (Source: customer.customer\_id)
  - first\_name (Source: customer.first\_name)
  - last\_name (Source: customer.last\_name)
  - email (Source: customer.email)
  - Active\_status (Source: customer.status)
  - city (Source: city.city)
  - country (Source: country.country)

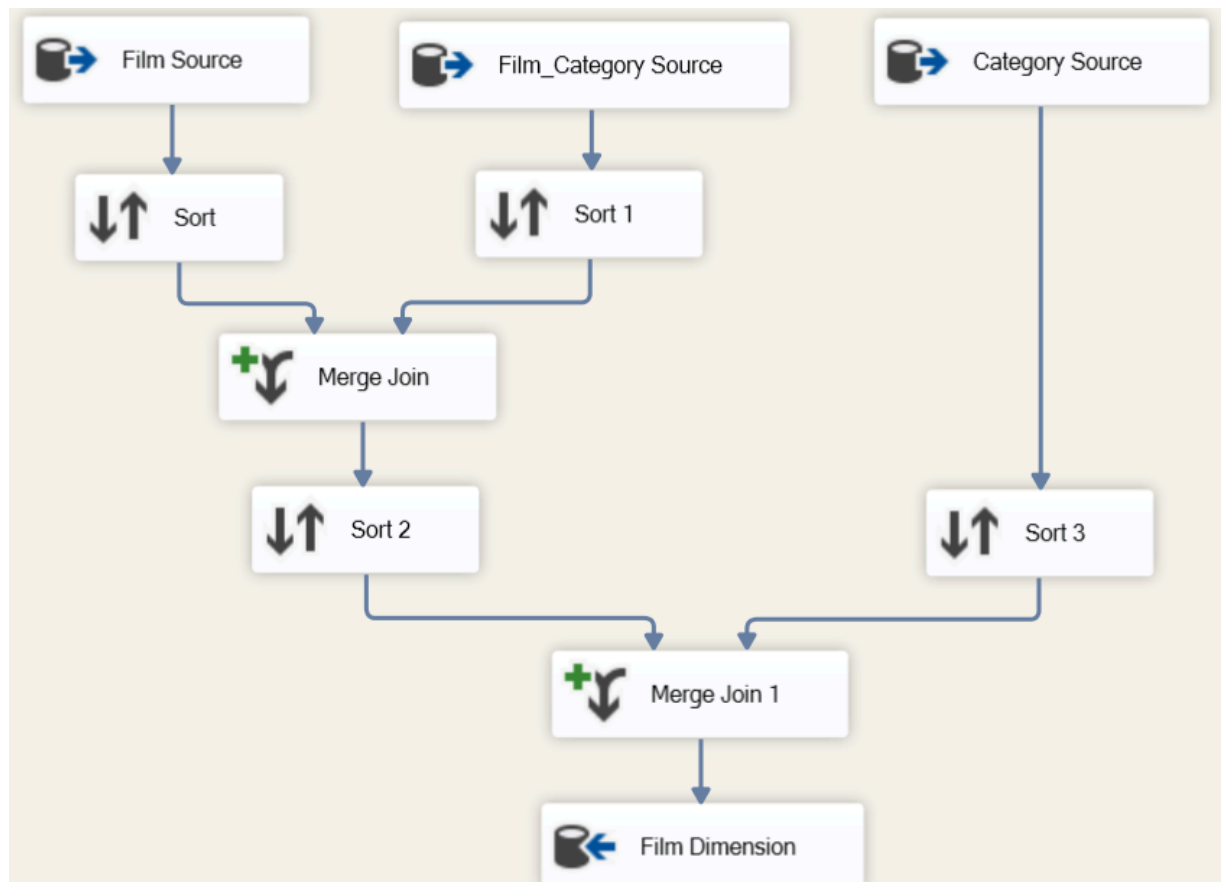
- Extraction:

Used SSIS tools to create this data flow task



## 2. Dimension: Dim\_Film

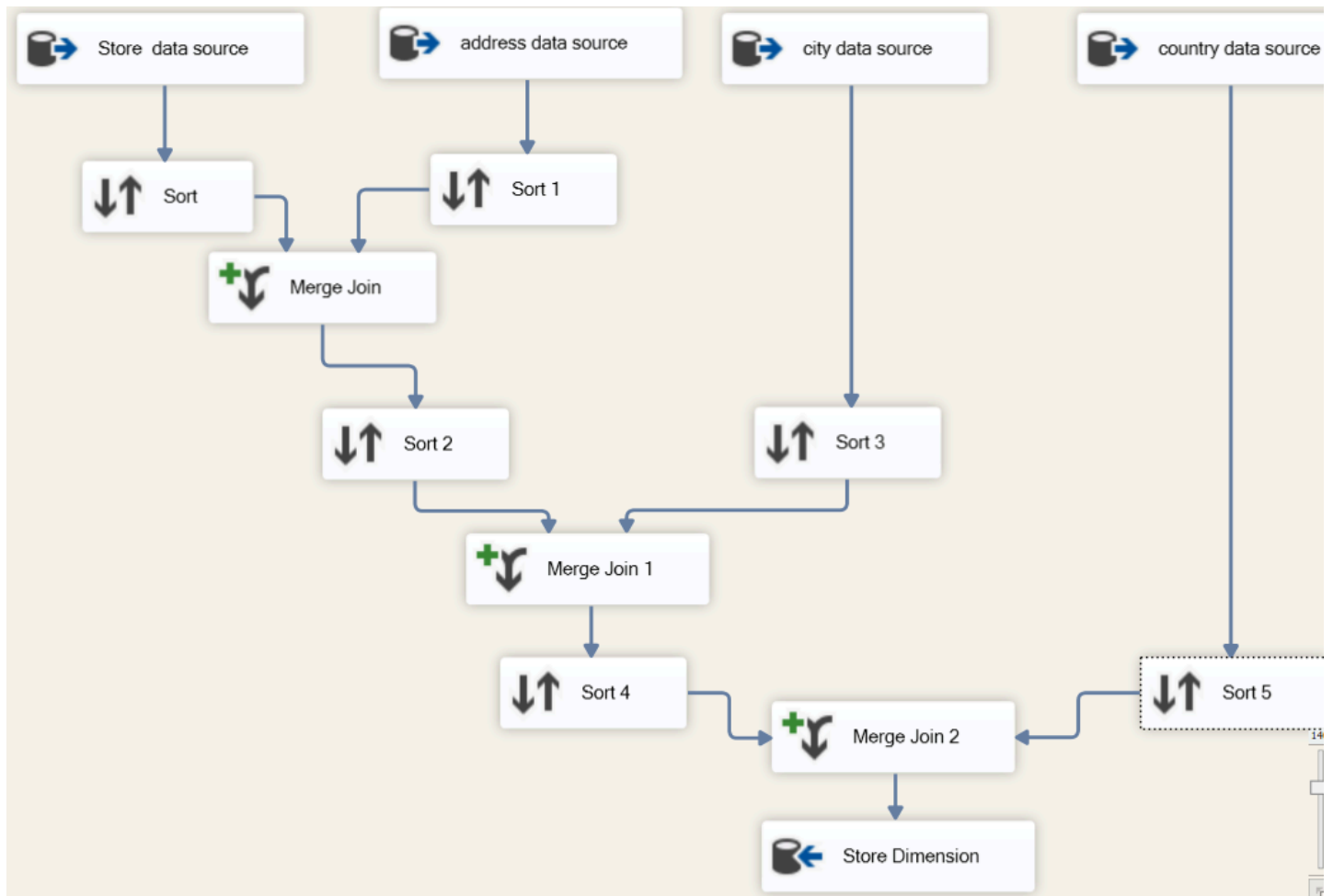
- Source Tables: film, film\_category, category
- Dimension Levels: None
- Dimension Attributes:
  - FilmKey (Surrogate Key - Identity)
  - film\_id (Source: film.film\_id)
  - title (Source: film.title)
  - Rental\_rate (Source: film.Rental\_rate)
  - Length (Source: film.length)
  - release\_year (Source: film.release\_year)
  - Category (Source: category.name)
- Extraction:  
Used SSIS tools to create this data flow task



### 3. Dimension: Dim\_Store

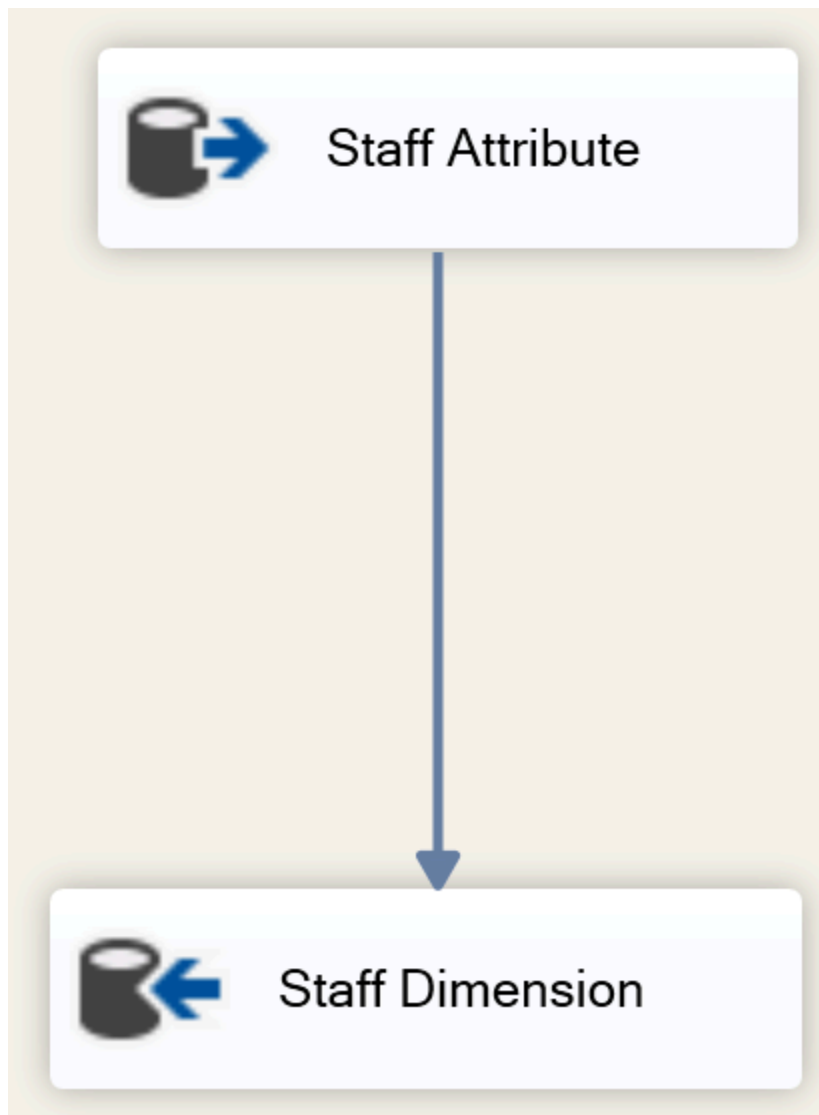
- Source Tables: store, address, city, country
- Dimension Levels: None
- Dimension Attributes:
  - StoreKey (Surrogate Key - Identity)
  - store\_id (Source: store.store\_id)
  - manager\_id (Source: store.manager\_staff\_id)
  - city (Source: city.city)
  - country (Source: country.country)
- Extraction:

Used SSIS tools to create this data flow task



#### 4. Dimension: Dim\_Staff

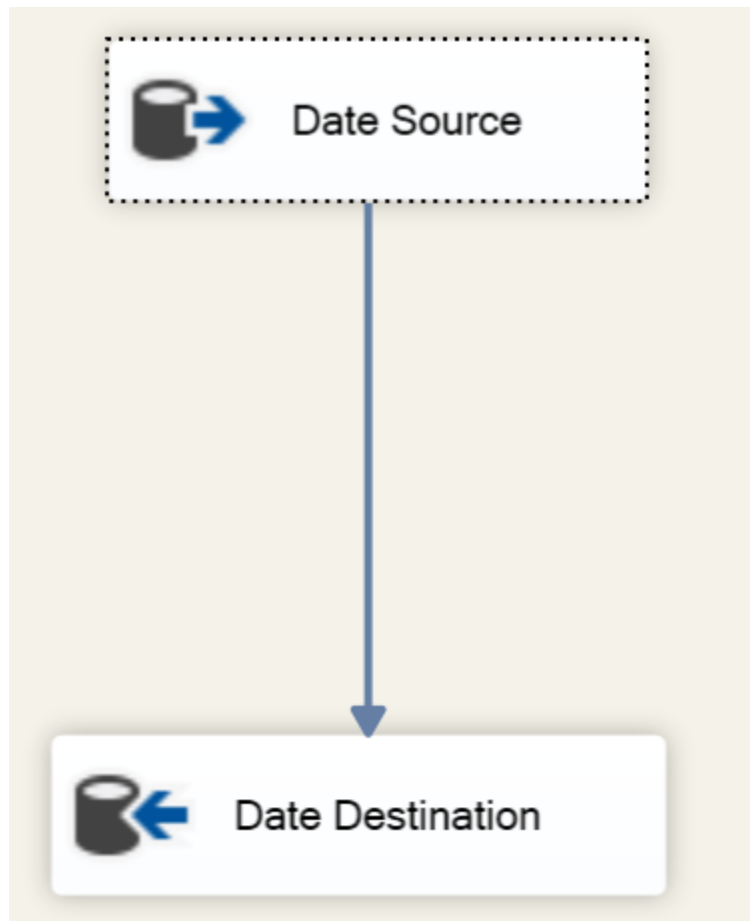
- Source Table: staff
- Dimension Levels: None
- Dimension Attributes:
  - StaffKey (Surrogate Key - Identity)
  - staff\_id (Source: staff.staff\_id)
  - first\_name (Source: staff.first\_name)
  - last\_name (Source: staff.last\_name)
- Extraction:  
Used SSIS tools to create this data flow task



## 5. Dimension: Dim\_Date

- Source Table: Auto-generated (Calendar generation)
- Dimension Levels: Year > Month > Day
- Dimension Attributes:
  - DateKey (Surrogate Key - Identity)
  - FullDate
  - Day\_of\_week
  - Month
  - Quarter
  - Year
- Extraction:

Used SSIS tools to create this data flow task



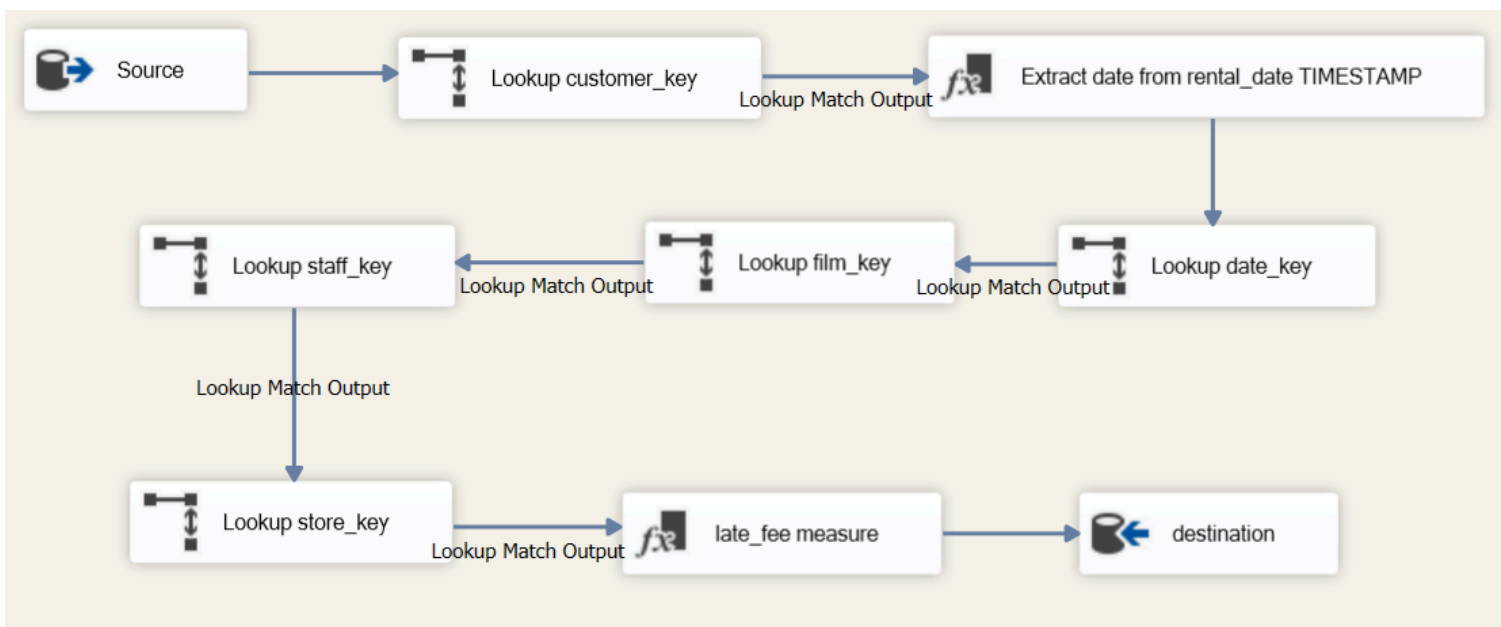
Query inside the "Data Source" OLE DB Source:

```
WITH DateCTE AS (  
    SELECT CAST('2005-01-01' AS DATETIME) AS full_date  
    UNION ALL  
    SELECT DATEADD(day, 1, full_date)  
    FROM DateCTE  
    WHERE full_date < '2007-12-31'  
)  
SELECT  
    full_date,  
    YEAR(full_date) AS year,  
    DATEPART(quarter, full_date) AS quarter,  
    DATEPART(weekday, full_date) AS day_of_week,  
    MONTH(full_date) AS month  
FROM DateCTE  
OPTION (MAXRECURSION 1100) # 3 years * 365 day = 1095 day
```

## 6. Fact Table: Rental\_fact\_table

- Source Tables: rental, payment, inventory, film
- Measures:
  - payment\_amount (Source: payment.amount)
  - Rental\_duration (Source: rental.rental\_date)
  - late\_fee (Calculated)
- Foreign Keys / Dimension References:
  - DateKey (from Dim\_Date)
  - CustomerKey (from Dim\_Customer)
  - FilmKey (from Dim\_Film)
  - StaffKey (from Dim\_Staff)
  - StoreKey (from Dim\_Store)
- Extraction:

Used SSIS tools to create this data flow task



Query inside the "Source" OLE DB Source:

```
SELECT
    f.rental_duration,
    p.amount AS payment_amount,
    i.store_id,
    r.staff_id,
    f.film_id,
    r.customer_id,
    CAST(r.rental_date AS DATE) AS rental_date,
    r.return_date
FROM
    rental r
    JOIN payment p ON r.rental_id = p.rental_id
    JOIN inventory i ON r.inventory_id = i.inventory_id
    JOIN film f ON i.film_id = f.film_id;
```

Query to calculate the derived column "late\_fee" measure:

```
(ISNULL(return_date) || DATEDIFF("Day",rental_date,return_date)
<= rental_duration) ? 0.00 :
(1.00 + 0.05 * (DATEDIFF("Day",rental_date,return_date) - rental_duration))
```



## Control Flow Task:

